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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte MATTHEW BRIAN BEHR and PIETER J. MOSTERMAN

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Appeal 2015-005855
Application 13/242,611[1]
Technology Center 2100

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Before LARRY J. HUME, JENNIFER L. McKEOWN, and
NORMAN H. BEAMER, *Administrative Patent Judges.*

McKEOWN, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's Final
Rejection of claims 1–15 and 17–30. Claim 16 is cancelled. We have
jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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STATEMENT OF THE CASE

Appellants' invention is directed to:

A computing device [] configured to receive a design. The computing device may further receive a requirement object that represents a requirement for the design. The requirement object may include a first functionality and a second functionality. The computing device may interact with the design using the requirement object. When interacting with the design, the computing device may invoke the first functionality to determine whether the design satisfies the requirement and invoke the second functionality to provide a result of invoking the first functionality.

Abstract.

Claim 1 is illustrative and is reproduced below:

1.   A method comprising:

instantiating a requirement element, for a requirement, within a requirements framework associated with a computing environment, the instantiating being performed by a computing device;

receiving information associated with components, the receiving being performed by the computing device;

identifying, using the received information and based on the requirement element, one or more components, of the components, that satisfy the requirement, the identifying being performed by the computing device;

creating, based on the identified one or more components, a design, the creating being performed by the computing device;

interacting with the design using the requirement element, the interacting comprising invoking a functionality of the requirement element, the functionality initiating the interacting, and the interacting being performed by the computing device;

testing, based on interacting with the design, the design, the testing being performed by the computing device, and the testing including:

invoking a first functionality associated with the requirement element to determine that the requirement element is applicable to the design;

and invoking, based on determining that the requirement element is applicable to the design, a second functionality associated with the requirement element, the first functionality being different than the second functionality; and

interacting, based on testing the design, with a representation of the design to provide, for presentation, information associated with one or more portions of the design that satisfy the requirement, the interacting with the representation of the design being performed by the computing device.

THE REJECTIONS

Claims 1, 3, 7, 11–13, 15, and 17–22 are rejected under 35 U.S.C. § 102(b) as anticipated by Goodman et al. (US 2006/0059253 A1; pub. Mar. 16, 2006). Final Act. 2–31.

Claims 2, 9, 10, and 14 are rejected under 35 U.S.C. § 103(a) as unpatentable over Goodman and Sengupta et al. (US 2012/0159119 A1; pub. June 21, 2012). Final Act. 32–35.

Claim 4 is rejected under 35 U.S.C. § 103(a) as unpatentable over Goodman, Koza et al. (US 7,117,186 B2; issued Oct. 3, 2006) and Makhlouf (US 6,789,054 B1; issued Sept. 7, 2004). Final Act. 35–37.

Claim 5 is rejected under 35 U.S.C. § 103(a) as unpatentable over Goodman, Sengupta, and Teller et al. (US 2012/0323535 A1; pub. Dec. 20, 2012). Final Act. 37–38.

Claim 6 is rejected under 35 U.S.C. § 103(a) as unpatentable over Goodman, Hongchao Ji et al. (*A Model Driven Approach for Requirements Engineering of Industrial Automation Systems*, 4th Int'l Workshop on Equation-Based Object-Oriented Modeling Languages and Tools 9, 9–18 (2011) ("Hongchao")) and R. Mukkamala Adavi et al. (*HADL: HUMS*

Architectural Description Language, IEEE 11.D.3-1–11.D.3-10 (2003) ("Adavi")). Final Act. 38–40.

Claims 8 and 23–25 are rejected under 35 U.S.C. § 103(a) as unpatentable over Goodman and Makhlouf. Final Act. 40–43.

Claim 26 is rejected under 35 U.S.C. § 103(a) as unpatentable over Goodman, Makhlouf, and Wilcock et al. (US 2010/0115490 A1; pub. May 6, 2010). Final Act. 44–45.

Claims 27–30 are rejected under 35 U.S.C. § 103(a) as unpatentable over Goodman and Hein (US 2009/0024647 A1; pub. Jan. 22, 2009). Final Act. 46–53.

ANALYSIS

THE ANTICIPATION REJECTION BASED ON GOODMAN

Claims 1, 3, 7, 11–13, 15, and 17–22

As an initial matter, we note that in the event of further prosecution of this application, we direct the Examiner's attention to the question of whether the claims are patent-eligible under 35 U.S.C. § 101 in light of the preliminary examination instructions on patent eligible subject matter. *See* 2014 Interim Guidance on Patent Subject Matter Eligibility, USPTO (Dec. 16, 2014). Abstract ideas have been identified by the courts by way of example, including fundamental economic practices, certain methods of organizing human activities, an idea "of itself," and mathematical relationships/formulas. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355–56 (2014).

Although "computing device" is nominally recited in claim 1, a question arises as to whether a person would also be capable of performing the acts of the claimed method as mental steps, or with the aid of pen and

paper. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375 (Fed. Cir. 2011) ("That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*."). Our reviewing court further guides that "a method that can be performed by human thought alone is merely an abstract idea and is not patent-eligible under § 101." *CyberSource*, 654 F.3d at 1373. We leave further consideration of this § 101 issue to the Examiner. Although the Board is authorized to reject claims under 37 C.F.R. § 41.50(b), no inference should be drawn when the Board elects not to do so. *See* Manual of Patent Examining Procedure (MPEP) 1213.02.

Turning to the rejections before us, we are not persuaded that the Examiner erred in rejecting claims 1, 3, 7, 11, 13, 15, and 17–22.

Appellants first contend Goodman does not disclose "creating, based on the identified one or more components, a design" where the one or more components is identified, using the received information, as satisfying a requirement. App. Br. 9–13. Appellants follow a particular format for presenting this argument. Namely, Appellants reference or quote a particular paragraph of Goodman relied upon by the Examiner and then present conclusory assertions that the cited paragraph fails to disclose the recited limitation. *See, e.g.*, App. Br. 9–10. For example, Appellants generally discuss the disclosure of paragraphs 80 and 81 and then conclude:

> While these passages of GOODMAN et al. mention using applications "designed to handle the business needs of the organization" and "satisfy the needs of a business enterprise's data handling requirements in terms of entities and relationships," there is no teaching or suggestion in these passages of GOODMAN et al. of creating any "design," much

> less creating a "design" based on "one or more components" that "satisfy the requirement" and are identified "using the received information and based on the requirement element." No design is created in these passages of GOODMAN et al.

App. Br. 9–10. Notably, Appellants do not present persuasive arguments identifying error in the Examiner findings nor does Appellants consider the cited portions of Goodman together. Specifically, while Appellants allege the cited paragraphs 80 and 81 do not create a design, additionally cited paragraphs of Goodman expressly refer to development process including a design process for achieving desired requirements. *See, e.g.,* Goodman ¶¶ 240, 241, 367.

Appellants present similar conclusory arguments with respect to the remaining cited paragraphs of Goodman. *See, e.g.,* App. 11 (contesting that paragraph's 241 mentioning validating a design is not creating a design), App. Br. 13 (asserting that the mere disclosure a design in paragraph 367 of Goodman does not teach the recited design claim limitation); *see also* Reply Br. 3–4. We find these arguments unpersuasive.

Moreover, Appellants' arguments with respect to creating a design are unavailing given the broad scope of design, requirement, and components disclosed in the Specification. For example, the Specification describes:

> A design may include a representation of a system and/or software. A type of a design may refer to a purpose of a design and/or to a type of a representation of the design. In one example, when referring to the purpose of the design, the design may include one or more of: a conceptual design, a high-level design, a detailed design, a functional design, an architectural design, a structural design, or a behavioral design.
> In another example, when referring to the type of the representation of the design, the design may include one or more of: a graphical model, a textual model, a time-based modeling diagram, a class diagram, an object diagram, a state transition

diagram, a unified modeling language (UML) diagram, a system modeling language (SysML) diagram, an architecture description language (ADL) diagram, hardware code, software code, differential equations, difference equations, algebraic equations, assignments, a dynamically typed language, an array-based language, an action language, a collection of data, etc. In yet another example, a type of the design may be associated with a particular modeling tool or a particular source code language used to create the design.

Spec. ¶¶ 16–17. Further, the Specification states "[a] component may represent a portion of the design" and "[a] requirement may represent/ specify, for example, an attribute, a capability, a characteristic, and/or a quality that a design is required to possess." Spec. ¶¶ 21–22; *see also* Fig 1 (depicting example components of a device as a bus 110, a processor 120, a memory 130, a storage 140, an input device 150, an output device 160, and/or a communication interface 170).

These broad descriptions support the Examiner's findings with respect to Goodman. In particular, Goodman, as the Examiner finds, at least discloses, for example, using analysis and design tools to create a design to achieve certain functional and technical specifications or requirements based on key components of the system. Final Act. 4–5 (citing Goodman ¶¶ 228, 241, 367). As such, for the reasons discussed above and identified by the Examiner, we are not persuaded that the Examiner erred in finding that Goodman teaches the disputed creating a design limitation.

Appellants also use the same conclusory approach to argue that Goodman fails to disclose the testing limitation of claim 1. *See* App. Br. 14–29. For example, Appellants allege:

> While these passages of GOODMAN et al. mentions a "product test" to test an "application" and a "functionality of the solution," the mere disclosure of testing an "application" and a

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> "functionality of the solution" does not teach or suggest a "first functionality" and a different, "second functionality." Moreover, there is no teaching or suggestion that any design is tested by "invoking a first functionality associated with the requirement element to determine that the requirement element is applicable to the design" and "invoking, based on determining that the requirement element is applicable to the design, a second functionality associated with the requirement element." This passage of GOODMAN et al. does not invoke a "first functionality" to "determine that the requirement element is applicable to the design" and invoke a "second functionality" that is "associated with the requirement element."

App. Br. 26–27; *see also, e.g.*, App. Br. 15–28 (repeating arguments that paragraphs 92, 95, 228, 241, 258, 259, 261, 264, 265, 266, 270, 271, 379, not teach or suggest the recited first or second functionality); Reply Br. 5–6. These conclusory assertions are unavailing.

Specifically, Appellants fail to persuasively address the Examiner's findings. For example, the Examiner finds that Goodman discloses

> the **design** deals with how the system will be constructed; **validating** (testing) ensures that the design actually meets **the requirements** for **functionality**, performance, reliability and usability is essential; after detailed design is done, the design data is stored in the repository; then the data from the repository is retrieved (identify a position of relevant data in the stored data; trace to the relevant data) and testing is done to ensure that the design actually meets **the requirements**.

Ans. 5–6 (citing, for example, Goodman ¶¶ 241, 265, 266); Final Act. 7–8. In other words, Goodman tests whether a component meets the requirements (such to determine that the requirement is applicable to the design) by invoking a functionality of the component. *See, e.g.,* Goodman ¶¶ 241, 265, 266.

With respect to the recited second functionality, the Examiner finds that Goodman discloses testing the interaction of related components. Final Act. 7–8. As such, once the functionality of a component is determined to meet the design requirement (and thus is determined to be applicable to the design), interaction with a related component will also be tested, by invoking a second functionality, data communication. Final Act. 7–8; *see also* Ans. 5–6.

Appellants similarly do not persuasively respond to these findings. Rather, as discussed above, Appellants merely assert that

> the Examiner has not explained how any of the above passages of GOODMAN et al. can reasonably be construed to disclose the requirement element that is associated with a "first functionality ... to determine that the requirement element is applicable to the design" and a "second functionality" that is different than the "first functionality."

Reply Br. 6. As such, we are not persuaded that the Examiner erred in finding that Goodman discloses the recited testing limitation.

Finally, Appellants allege "that the Examiner is improperly locating individual words in several disparate paragraphs of GOODMAN et al. and asserting that these words support a § 102 rejection." Reply Br. 4–5. This argument, however, was raised for the first time in the Reply Brief and is, therefore, waived as untimely. *See also Ex parte Borden*, 93 USPQ2d 1473, 1474 (BPAI 2010) (informative) ("[The reply brief [is not] an opportunity to make arguments that could have been made in the principal brief on appeal to rebut the Examiner's rejections, but were not."). Moreover, Appellants does not persuasively explain how the Examiner is relying on disparate *embodiments* of Goodman in the rejection.

Appellants again present conclusory arguments with respect to
dependent claims 12, 21, and 22 without persuasively responding to the
Examiner's findings. *See* App. Br. 30–36: Reply Br. 7–17. For example,
with respect to claim 12, Appellants, in discussing paragraph 95 cited by the
Examiner, assert that

> While this passage of GOODMAN et al. discloses a
> "repository" of "information management tools 56" that "share a
> common repository," there is no teaching or suggestion in this
> passage of GOODMAN et al. that these tools are associated, in
> any way, with "invoking a first functionality associated with the
> requirement element to determine that the requirement element
> is applicable to the design."
>
> Moreover, this passage of GOODMAN et al. is silent
> regarding "identify[ing] a position of relevant data in the stored
> data based on at least one of the type of the design or the
> representation of the design" and "trac[ing] to the relevant data"
> when "invoking the first functionality." In contrast, this passage
> of GOODMAN et al. is merely directed to a "repository" of
> "tools" with no disclosure of identifying any "position of
> relevant data" and tracing "to the relevant data" when "invoking
> the first functionality," as required by claim 12.

App. Br. 35. *See also* App. Br. 30–32 (presenting conclusory arguments with
respect to claim 12 and failing to address the Examiner's reliance on
paragraph 241 of Goodman).

Notably, these blanket assertions fail to consider the Examiner's
finding that Goodman's common data repository is used for both design and
testing and the Examiner's finding that Goodman's verifies or tests by
invoking the functionality of a component to determine the component
meets the specification or requirement. *See, e.g.,* Ans. 5–7 (citing Goodman
¶¶ 95, 193, 241, 265, 266); *see also* Goodman ¶ 193 (noting processes "must

be documented in a centralized database that allows quick and easy reference."). As such, we find Appellants arguments unpersuasive.

Likewise unavailing is Appellants arguments with respect to claims 21 and 22. *See* App. Br. 32–35; Reply Br. 12–17. As the Examiner finds, for example, Goodman validates that the design meets functionality requirements and performs test runs where the actual test results are compared with expected results. Final Act. 10, 30–31. *See also, e.g.*, Goodman ¶ 263 (noting that well defined standards and procedures for testing "ensures that the outputs from each test activity are documented at the right level of detail and fed back to the design and construction teams"). As such, we are not persuaded that the Examiner erred in finding that Goodman discloses the verifying and reporting functionality limitations of claims 21 and 22.

Accordingly, we sustain the rejection of claims 1, 12, 21, and 22, as well as claims 3, 7, 11, 13, 15, and 17–20 not argued separately (*see* App. Br. 30; Reply Br. 6), as anticipated by Goodman.

THE OBVIOUSNESS REJECTION BASED ON GOODMAN AND MAKHLOUF
Claims 23 and 24

Based on the record before us, we are not persuaded that the Examiner erred in rejecting claims 23 and 24 as unpatentable over Goodman and Makhlouf under § 103.

Appellants first repeat arguments presented with respect to claim 12. *See* App. Br. 39–42. As discussed above, we find these arguments unpersuasive. Also, similarly to arguments discussed above, Appellants make blanket assertions that the cited combination fails to satisfy the recited

claim limitations of claims 23 and 24. In particular, after referencing what is disclosed in the cited portions of Makhlouf, Appellants assert:

> While these passages of MAKHLOUF disclose "rules and tools used to construct M models" and "bind component objects of a real system into an integrated architecture," there is no teaching or suggestion in these passages of MAKHLOUF of determining that any data satisfies the "rules," much less determining "whether the relevant data [a position of which is specified by the requirement element] satisfies the rule," as required by claim 23.

App. Br. 42; *see also* Reply Br. 20–22.

We disagree. First, we note that the Specification broadly describes that a verification rule may merely define characteristics (e.g., of an element, a data set, connected elements, a configuration, etc.) necessary to satisfy the requirement. Spec. ¶ 67. Makhlouf teaches using expert rules to ensure a system of particular functional and performance requirements. *See, e.g.,* Makhlouf col. 4, ll. 33–36, 51–52, col. 5, ll. 18–26; Ans. 11–12; Final Act. 42; *see also* Goodman ¶ 241; Final Act. 41. As such, we are not persuaded that the combination of Goodman and Makhlouf, which together teach using a rule and verifying a design, including certain data, based on satisfying the rule or requirement.

Accordingly, we sustain the Examiner's rejection of claims 23 and 24 as unpatentable over Goodman and Makhlouf.

OBVIOUSNESS REJECTION BASED ON GOODMAN, MAKHLOUF, AND WILCOCK

Claim 26

Appellants present similar arguments for claim 26 as presented for claims 23 and 24. *See* App. Br. 43–45. For the reasons discussed above, we find these arguments unpersuasive. Accordingly, we sustain the Examiner's

rejection of claim 26 as unpatentable over Goodman, Makhlouf and
Wilcock.

THE OBVIOUSNESS REJECTION BASED ON GOODMAN AND HEIN

Claims 27–30

Based on the record before us, we are not persuaded the Examiner
erred in rejecting claims 23 and 24 as unpatentable over Goodman and
Makhlouf.

Appellants argue Goodman fails to teach or suggest the limitations
with respect to a modified design. *See* App. Br. 46; Reply Br. 25–26. The
Examiner, however, relies on Hein as teaching a modified design and the
combination of Goodman and Hein to teach the recited limitations. See,
e.g., Ans. 14–16; Final Act. 46–52. Appellants' arguments, thus, are
unpersuasive as they challenge the references individually. One cannot
show nonobviousness by attacking references individually where the
rejections are based on combinations of references. *See In re Keller*, 642
F.2d 413, 426 (CCPA 1981); *In re Merck & Co.*, Inc., 800 F.2d 1091, 1097
(Fed. Cir. 1986).

Accordingly, we sustain the Examiner's rejection of claims 27–30 as
unpatentable over Goodman and Hein.

THE REMAINING OBVIOUSNESS REJECTIONS

Claims 2, 4–6, 8, 9, 10, 14, and 25

Appellants do not present separate arguments for the patentability of
claims 2, 4–6, 8, 9, 10, 14, and 25. Namely, Appellants assert that the
additionally cited prior art does not cure the deficiencies of Goodman. *See,*

e.g., Reply Br. 18–20. Accordingly, as we sustain the rejection of independent claims 1, 11, and 15, we likewise sustain the Examiner's rejection of claims 2, 4–6, 8, 9, 10, 14, and 25 as unpatentable over the cited combinations of prior art.

DECISION

We affirm the Examiner's decision rejecting claims 1–15 and 17–30.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED